

**Hygiene  
in the  
Bakery Trade  
and Industry**

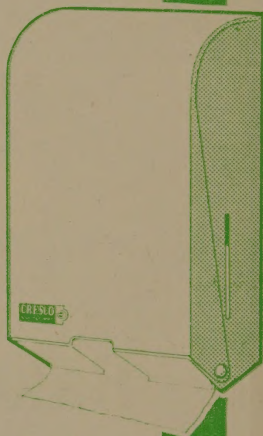
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# FOREWORD

*by the Minister of Health*

The importance of bread and other bakery products as food and the reception accorded to earlier food hygiene codes of practice have encouraged the Minister of Agriculture, Fisheries and Food and myself to arrange for the publication of this code for the bakery trade and industry. We hope that it will prove to be a helpful and practical contribution to better handling.

The Food Hygiene Regulations enable the courts to impose heavy penalties for bad handling of food. But it will never be necessary to resort to prosecutions if all whose livelihood is concerned with the handling of bakery goods are continuously conscious of the ways in which contamination can occur and of the precautions that can be taken to avoid it. Regulations cannot give advice and guidance and so in the Food and Drugs Act, 1955, Parliament provided for the publication of codes of practice, which can make positive suggestions for improving conditions and methods of handling bakery goods.

The Minister of Agriculture and I are indebted for helpful suggestions to the British Baking Industries Research Association, whose publication "General Principles of Bakery Planning" provided valuable information, and to local authority and trade associations and others who were consulted when this code was in draft.

*Kenneth Robinson*

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# Hygiene in the Bakery Trade and Industry

This code of practice is published by the Minister of Health and the Minister of Agriculture, Fisheries and Food, with the approval of the Food Hygiene Advisory Council, under Section 13(8) of the Food and Drugs Act 1955, for the purpose of giving advice and guidance to persons in the bakery trade who are responsible for compliance with the Food Hygiene (General) Regulations 1960 and the Food Hygiene (Markets, Stalls and Delivery Vehicles) Regulations 1966.

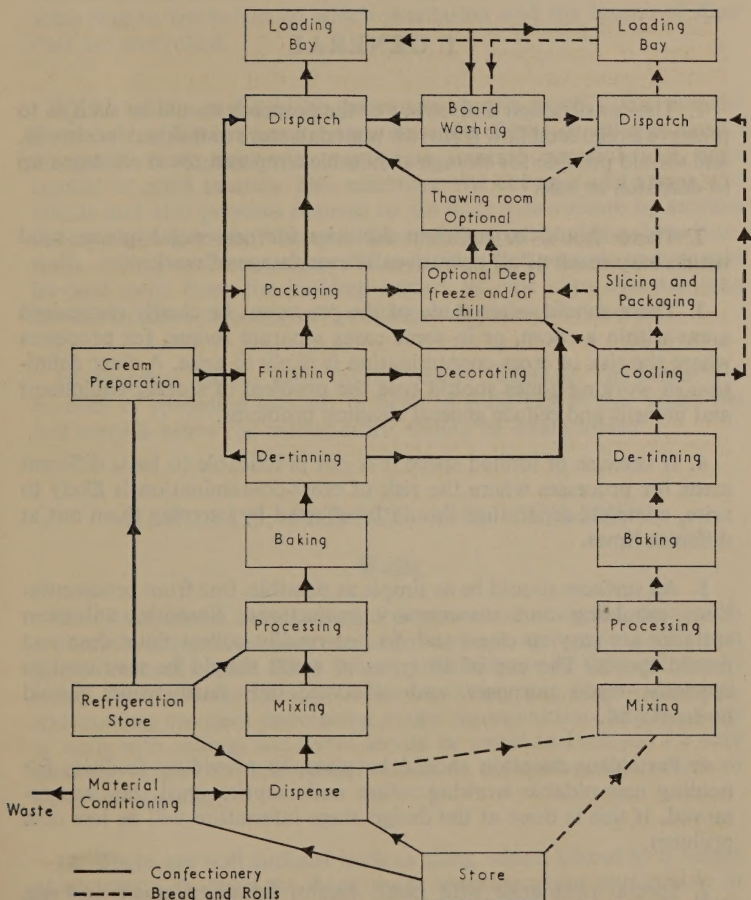
The code has no statutory force: it should not be regarded as an interpretation of the requirements of the Food Hygiene Regulations, and it should not be thought that observance or non-observance of any of its recommendations amounts to compliance or non-compliance with particular requirements in the regulations. For convenience of drafting the word "should" is frequently used in the text; but it is at all times used to describe desirable methods of construction or practice, and not to rule out other methods or practices equally conducive to good hygiene. Similarly, the expression "should not" does not imply statutory prohibition; nevertheless it is intended to express disapproval of the methods and practices to which it refers.

## Introduction

All bakery premises are subject to inspection by the local authority under the Food and Drugs Act 1955, and the premises, personnel and procedures must comply with the Food Hygiene (General) Regulations 1960. The basic principle of hygiene underlying the technical advice in this code should therefore be applied with appropriate modifications to all premises.

Where existing buildings are being adapted or new premises are being built, it is clearly desirable that the designer of the premises, the owner, the plant operator and the local authority public health department should consult together at the earliest possible stage. Whatever the process may be it is important that the premises are made to suit that process and not the process made to suit the premises.

## BAKERY WORK FLOW DIAGRAM



This diagram shows a suitable layout of working areas in a large bakery and illustrates the principles which should be followed to achieve an ideal flow of work. The separation of processes may be by time or space zoning.

# Construction, Layout and Equipment of Premises

## I GENERAL

1. The construction and layout of the premises should be such as to preserve a regulated flow from raw materials store to finished foodstuffs, and should provide for storage at suitable temperatures at all stages up to despatch or sale.

2. There should be sufficient facilities for personal hygiene, sited within easy reach of all operatives at every stage of work.

3. There should, after study of the processes, be clearly recognised areas within a room, or in some cases separate rooms, for processes where the risk of cross-contamination is likely to arise. A clear definition of working zones should ease the problem of storing equipment and utensils and reduce general cleaning problems.

4. If because of limited space it is not practicable to have different areas for processes where the risk of cross-contamination is likely to arise, complete separation should be effected by carrying them out at different times.

5. All surfaces should be as simple as possible, free from ornamentation, moulding and unnecessary projections. Smooth, unbroken surfaces are easy to clean and do not readily collect flour dust and mould spores. The use of all types of wood should be restricted to specialist trade purposes, and otherwise only hard wood should be employed.

6. Particular attention should be given to providing facilities for holding unavoidable working refuse and empties until they are removed. If this is done at the design stage infestation will be less of a problem.

7. Special risks arise with meat, cream, imitation cream and egg products and separate utensils and equipment are needed. Where possible there should be separate working spaces where cream, imitation cream, and egg are used in mixing operations. If it is not possible, these operations should be carried out at a different time from other operations.



8. The amount of flour deposit on building surfaces depends greatly on the type of container, method of handling, and design and siting of mechanical equipment. The type of finish that should be used will vary according to the extent to which ventilation and the escape of flour dust are controlled.

9. All buildings should be insect and vermin proof. Joints around pipes or any fitment passing through walls, floors or ceilings should always be made tight with impervious jointing materials (e.g. hard cement or pitch mastic). This minimises the entrance of rodents and insects and also prevents damage to the floor substructure by seepage during washing down. When possible supply pipes should be chased into walls, ceiling or floor surfaces. Where this is not possible they should be held away from the building surface by pipe clips that are long enough to allow cleaning and painting of the back of the pipes.

10. Sawdust has no place in any bakery premises. The occasional practice of spreading sawdust in front of solid fuel ovens, where the fuel entry is below the baking entry, should be discontinued.

## **II WALLS, FLOORS AND CEILINGS**

### **Walls**

11. Walls should be constructed of permanent materials, finished to a smooth impervious and washable surface, and maintained in a proper state of repair. They should preferably be of light colours to reflect light, and should appear clean and hygienic. In new premises, and existing premises undergoing major reconstruction, the junctions of walls with ceilings and floors should be coved and splayed for easy cleaning, subject to architectural advice on the coving of junctions of walls with ceilings.

12. There are wall surfaces such as tiling which, placed to a height of at least 6 ft. from the floor, make cleaning easier particularly in preparation rooms. If acoustic tiles or other materials are used to reduce noise by sound absorption they should be of the plastic covered type. The usual absorbent type of sound insulating material allows vapour to permeate, and would collect dust and lead to mould growth. External angles of tiled walls should be protected by metal strips.

\*13. Plastered surfaces should be finished to a fine trowelled surface and decorated to suit the process or part of the process intended to be carried on. In general, finishes should be of non-flaking, easily cleaned materials such as hard gloss paint, cold glaze, plastic based and emulsion paints. Special regard should be paid to walls near built-in ovens as the continued heat tends to crack and craze hard gloss surfaces. Washable distempers can therefore be used in limited situations e.g. where there is no danger from flaking, but care should be taken to ensure that they are completely washed off before redecorating. They should be renewed every 6 months, or oftener if necessary. Thorough cleaning is necessary to prevent the development of micro-organisms.

14. Cement-rendered surfaces should be trowelled to a fine hard finish and should normally be carried to ceiling height. With high ceilings the rendering should be to a height of 8 ft. or, where machinery is installed, to a height at least 2 ft. above the highest point of adjacent machinery.

### Floors

15. The construction and surface finish of floors should relate to the process carried out. Floors of preparation rooms at ground or lower ground levels should always be of durable impervious materials, laid to an even surface, and be free from cracks and open joints. As far as practicable the surface should be non-slip, e.g. granolithic incorporating carborundum. Quarry tiles and steel tiles are also acceptable. Similar floors may be used at upper storey level, but where constructional considerations dictate the use of wood the joints of the boarding should be tight-fitting or should be caulked with wood cement and planed to an even surface. Floors used for storing flour or for supplying raw materials or partial mixes by gravity should be designed to allow the complete cleaning away of flour pockets likely to encourage mould growth.

16. Except where production methods require level floors, floors which need regular washing down should be laid to a fall of 2 inches in 10 feet to a readily accessible draining system.

### Ceilings

17. Every room used in any process of the bakery trade including shops should have a properly constructed ceiling finished in a light colour. Where washable distempers are used they should be completely washed off before redecorating. Absorbent colour washes of

\* See cleaning chart



this kind should be renewed at least once in every six months or oftener if necessary. If high exposed girders cannot be avoided altogether, provision should be made for easy access so that they can be regularly cleaned.

### III LIGHTING, VENTILATION AND HEAT INSULATION

18. Particular attention should be given to the need for adequate lighting and ventilation, whether natural or artificial; the positioning of windows; and the need to prevent the entry of dust or dirt or the excessive movement of flour dust within the premises.

#### Lighting

19. The efficiency of artificial lighting is affected by the state of reflector fitments and they should be designed to allow easy dismantling, cleaning and reassembly. The illumination in any part of the work room should be not less than 20 foot candles, and higher at the specialised work points. For instance, work requiring close examination of materials or produce should be illuminated at an intensity of more than 25 foot candles. In special circumstances it may be necessary to increase this to 75 foot candles. In areas where confectionery is finished and decorated illumination should be not less than 50 foot candles. It is best to work out the distribution of fitments in consultation with a lighting engineer, but as a general guide it may be assumed that in a large room lit by gas-filled lamps in industrial type reflectors which are kept in a reasonable state of cleanliness, an illumination of 20 foot candles would require 3 to 3½ watts per square foot of floor area. \*If fluorescent lighting is used an 80 watt fluorescent tube can be considered almost equivalent to a 300 watt gas-filled lamp. \*For the purposes of this recommendation, foot candles are considered to be the equivalent of lumens or lamberts.

#### Ventilation

20. Ventilation requirements will vary according to the process. Some degree of mechanical ventilation is desirable in all but the smallest bakeries. Whether the system is natural or artificial, the normal

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\*As examples: a room 70 ft. × 30 ft. of average ceiling height (or with long fitments suspended 8 ft. above the floor) would need 22 × 300 watt lamps or their equivalents;

22 tubes of 80 watts each would give 20 foot candles;

55 tubes of 80 watts each would give 50 foot candles.

standard should be three changes of air per hour. Less is acceptable in store rooms. In oven rooms and cooling rooms the rate should be increased to 20 changes of air per hour. The direction of the air-flow should be planned to avoid any risk of contamination from dust, etc.

21. Ideally the ventilation and heating system should be designed to aim at the following objects:

- (1) The air should be maintained at the temperature and humidity which is correct for the particular part of the bakery.
- (2) Condensation should be prevented as far as practicable in all parts of the bakery.
- (3) Dust, soot, and, as far as practicable, mould spores should be kept out, particularly in the areas through which the products pass after baking—especially the slicing area.

### **Heat insulation**

22. It is important for walls (and also for doors, windows and ceilings) to have good heat insulation properties wherever the required temperature in a particular area is much greater or much less than the temperature on the other side of the wall etc. The degree of insulation required to prevent condensation will depend on the relative humidity in the area. The Thermal Insulation (Industrial Buildings) Regulations, 1958 prescribe a standard of insulation against loss of heat for new buildings.

23. The highest relative humidity which is likely to be encountered in a bakery is 70%, except in those areas where special measures are taken to keep the relative humidity high (such as the fermentation room). Refrigerated stores and deep freezes will have little or no humidity.

## **IV JOINERY, DOORS, WINDOWS**

### **Joinery**

24. All internal joinery work should be of simple design for easy cleaning and for minimising flour dust deposit. Except for working surfaces it should be finished with a hard gloss surface. Joints between wood and masonry should as far as possible be tight and flush fitting. Wood to wood joints in process rooms should be caulked tight with wood cement and planed.

25. In all rooms woodwork surrounding doors, windows and other openings should be fixed tight to the internal wall surfaces so as to avoid open joints which may harbour pests.

\*26. Where for some processes wooden working surfaces are needed they should where practicable be small enough to be immersed totally in water for cleaning. Where this is not possible by the nature of the process, special routines of cleaning should be followed.

### **Doors**

27. Internal doors should preferably be without panels or ledges. The bottoms of doors should, wherever necessary, be protected on both sides by non-corroding metal kick plates to prevent damage which might provide a means of access for rodents. Flexible plastic or rubber overlap doors are now available.

### **Windows**

28. Windows should be of plain construction and should be accessible for easy cleaning. Glazing should be provided from three feet above the floor up to about eight feet.

29. Internal window sills should be so constructed that they cannot be used as temporary shelves.

## **V GRAVITY FEED LINES AND LIFTS**

\*30. Standards supporting gravity feed lines should either be round or have no enclosed angles. Their feet should be single metal discs for easy cleaning. Any fabric ingredient guides or covers should be replaced and laundered at least once weekly. The internal surfaces of the base and sides of lift cages should be smooth and impervious. All fixtures and equipment, including rollers of conveyor belts, should be vacuum cleaned regularly and brushed out thoroughly once a day. The top outer surface of the lift cage and haulage machinery should be kept free of flour dust by regular brushing or vacuum cleaning.

\*31. Lift shafts and supply shafts between floors, whether or not they can be seen throughout their length from operating points, should be smoothly finished and should be thoroughly and regularly cleaned.

\* See cleaning chart



32. Lift wells should be readily accessible for cleaning.

## **VI VENTILATION DUCTS AND FANS**

\*33. Ducts inside food rooms should as far as possible be built into the adjoining walls or ceilings. Where this is not possible there should be sufficient clearance to allow all the outside surfaces of a duct to be cleaned and some provision made for easy access. In exhaust fan systems any inlet ducts in flour rooms should be fitted with a filter, e.g. gauze of 100 mesh. The filters should be cleaned and replaced at least weekly.

\*34. Metal ventilation fittings should be protected from rust by frequent cleaning and painting. Non-ferrous fittings are available. In flour rooms there should be access plates at bends. All inlet screens should be removable for cleaning.

## **VII WATER SUPPLY**

35. There should be a plentiful supply of clean and wholesome hot and cold water. Plant bakeries should be equipped with shower baths or other similar fittings for the regular use of bakery staff.

36. Any lagging of hot water pipes should be of substances which will not melt, run or be otherwise affected by temperature changes.

\*37. Storage tanks should, unless completely sealed, be kept covered, examined regularly, and cleaned out at least once every six months. The advice of the Public Health Department of the local authority may be sought if difficulties occur where the tank is not under the control of the baker.

## **VIII DRAINAGE**

38. The drainage system must conform to any requirements enforceable by the local authority.

\*39. Drainage should be adequate to remove all waste water without risk of flooding or pooling at gully-traps. Where fat is melted, grease traps should be installed. To ensure efficient working the body of the traps should be regularly washed out, their inserts removed and cleaned and the filter materials renewed.

\*40. There should be no internal open channels inside food rooms. If open channels are constructionally unavoidable the routine in the cleaning chart should be followed.

\* See cleaning chart

## IX SINKS AND WASH-HAND BASINS

41. Sinks and troughs used for washing ingredients and utensils should not be used for washing hands. A three tank system is recommended which follows the routine of pre-rinse, washing with detergent and sterilising. Advice on adaptations of this routine, having regard to the nature and size of the equipment, can be obtained if required from the Public Health Department of the local authority. Stacking arrangements for dirty utensils should be completely separate from storage facilities for clean utensils.

\*42. Surfaces draining to a sink should be constructed of metal or other material with a hard, smooth, impervious, and even or purpose-made ribbed surface. If constructed as an integral part of the sink unit cleaning is easier but otherwise the draining surface should be removable for regular cleaning. If the use of seasoned hardwood is preferred for some processes the fitments should be discussed and agreed with the local Public Health Department.

43. Wash-hand basins should be sited where they will be readily and frequently used by food handlers during the course of their work. The number to be provided should be agreed with the Public Health Department of the local authority; orders such as the Bakehouses Welfare Order, 1927, lay down requirements for size and number of wash-hand basins in bakehouses as therein defined.

## X YARDS

44. Any part of a yard or forecourt used in connection with a bakery should have an even, hard surface (paved) capable of being washed down, and should have adequate drainage and a fall of at least 2" in 10 ft.

45. Where practicable the yard should have means of access other than through premises where bakery goods are prepared, stored or sold.

46. Where any part of a yard, forecourt or room is used for the storage or cleaning of boxes, utensils, returnable containers or delivery trays, the adjacent walls should be rendered with cement to a height of at least five feet, or be of fair brickwork with struck joints, or of other impervious surface. Empty containers which are difficult to clean completely attract flies, wasps and vermin. They should be stored under closed cover until removed from the premises.

47. Delivery trays which have been washed should be stored indoors in a place reserved for that purpose.

\* See cleaning chart

## **XI DWELLING ACCOMMODATION**

48. Dwelling accommodation should be closed off from those parts of the bakery premises used for any process or storage, except when it is necessary for any person to pass from one to the other.

## **XII FITTINGS, EQUIPMENT AND UTENSILS**

### **General**

\*49. All fittings and equipment should be designed to reduce to a minimum the collection of flour dust and micro-organisms, and to encourage frequent cleaning and ease of maintenance. The use of wood should be restricted to specialised purposes. Hard wood only should be used and construction should be such that there are no cracks or open joints.

50. Solid fuel ovens should be fired from outside the bakehouse. Where ovens fired from within the bakehouse are in use arrangements should be made, where possible, to fuel them from outside.

\*51. All trays should be clean at the start of every working day. When washed by hand, wooden trays should be scrubbed in warm water and detergent. Automatic washing devices are available which use hot water at temperatures of 110 °F. to 170 °F. (71 °C. to 77 °C.) or above this if desired.

### **Working surfaces including service counters**

52. All working surfaces should be constructed so that they can be easily cleaned. Fitments should be free of ornamentation, crevices and open joints. The top and sides should be smooth and impervious to fats and moisture and if permanently fitted flush to the floor the sides should be coved at the floor junction. It is particularly important to allow for easy cleaning of the under surfaces of fitments which are not flush with the floor.

53. The possibility of replacing wooden surfaces with metal, alloy or laminated plastic should be considered in every instance except where a process requires the use of wood. The degree of pressure used in cutting and chopping in bakeries is not normally such as would damage the edges of cutting tools against metal or similar impervious surfaces.

\* See cleaning chart



## **Shelving and storage racks**

\*54. Shelving to take food containers or food items on working bases (such as cakes on an icing board) should be of metal or slatted hardwood and should be arranged for easy cleaning. Any shelf should be 12 inches or more from floor level and a final butt board on edge should be so placed at the rear and sides as to prevent food touching the walls. Alternatively, shelves should be kept 2" clear of wall surfaces.

\*55. Storage racks and shelving for other bakery goods should preferably be of metal and capable of being dismantled for easy and regular cleaning.

\*56. Specialised storage racks such as mobile proving trolleys should be of metal with sufficient height between racks to allow for easy cleaning and to prevent damage to goods.

## **Cleaning of equipment and utensils**

\*57. Bakery goods include a variety of constituents in which food poisoning organisms can flourish, and unless equipment and utensils are adequately cleaned between each bakery process contamination of successive mixes can occur. The use of detergent with sterilant is considered necessary for cleaning utensils etc. which have been used for foods which can be easily microbiologically contaminated (e.g. meat, cream and imitation cream, and egg) unless either live steam or boiling water is available as an alternative (except for wooden surfaces). If automatic taps are used to dispense the detergent and sterilant this should ensure a regulated supply and obviate waste. If not, care should be taken to ensure that the right quantity is used. Silicone glazes and plastic finishes e.g. PTFE, reduce the need for greasing and the frequency with which utensils etc. need to be cleaned.

58. A cleaning routine is contained in the appendix. This should be displayed prominently on the premises in the form of a chart.

## **Storage of equipment and utensils**

59. Adequate accommodation should be provided for storing equipment and utensils after cleaning until they are required for use. This accommodation should be arranged above floor level and if possible above the level of the usual working surfaces, and should be adjacent to the point of regular issue.

\* See cleaning chart

\*60. Cloths used for the cleaning or preparation of working surfaces which are liable to come into contact with food should be changed several times a day. They should not be used again until washed and sterilized by boiling or immersion in a suitable chemical sterilant. Cloths and rough materials used in handling hot tins and pans should be hung up away from working surfaces when not in use.

## **Storage and handling of food items**

### **I GENERAL**

61. There should be proper control and storage of items such as flavours and colours which are issued only in small quantities at any one time.

62. An organised rotation of all food stocks is essential in good hygiene practice, particularly where perishable items are concerned. Routine checks of stores should be made once a week, and more frequently for items containing meat, egg products, cream, custard, etc.

63. All possible steps must be taken to ensure that no foreign ingredients or bodies can gain access to bakery products or to any of their constituents or containers. The packaging of raw materials is particularly important in this connection.

### **II MEAT PRODUCTS**

64. Minced, diced and processed meats become easily contaminated with food poisoning organisms, and are particularly liable to spoilage. Cooked meats should be kept separate from raw meats at all times. It is therefore all the more important to apply to them the general provisions of this code, especially the recommendations in paragraphs 115 and 119-123.

65. The same working surfaces should not be used for the preparation of meats as for other bakery items. Where it is not practicable to have separate working surfaces the preparation of meat should be carried out at a different time from other operations. If vegetables are prepared in the same place the surfaces should be thoroughly cleaned before being used for meat in order to prevent its contamination with soil organisms.

66. Utensils and the contact surfaces of equipment used for the preparation of meat products should not be used for other bakery items.

\* See cleaning chart

67. Meats and meat products should be touched by hand as little as possible; any equipment used must be kept clean.

68. Cooked meat products not intended for immediate consumption should be cooled under hygienic conditions to below 50 °F. (10 °C.) as soon as possible, or held at 145 °F. (62.7 °C.) or above.

69. Storage of bakery goods containing or intended to contain meat or meat products requires careful attention. (Every trader should consider the implications of Regulation 25 of the Food Hygiene (General) Regulations in relation to specialised goods).

- (a) Those intended for deep freeze storage should be frozen as quickly as possible and retained at the set temperature until required for thawing prior to cooking.
- (b) There is a form of manufacture using pre-formed uncooked bakery pastry cases intended to be filled with cooked meat. When filled these cases should be baked at once or be subject to immediate storage at controlled temperatures below 50 °F. (10 °C.). Cooked meat fillings intended to be put into these cases should also be held below 50 °F. or at 145 °F. (62.7 °C.) or above. The baked pastry cases filled with cooked meats should be similarly stored.
- (c) Other goods (meat pies, sausage rolls etc.) not intended for quick sale after cooking should be kept below 50 °F. or at 145 °F. or above, with as little variation as possible.
- (d) No goods of this type should be subjected to alternate cold storage and storage at room temperature.

70. When using a gelling agent or stock the following conditions should be observed:

- (a) It should be prepared daily and be boiled for not less than five minutes.
- (b) While being used it should be kept at a temperature of not less than 160 °F. (71 °C.). If this is not possible, small quantities should be taken from the main supply from time to time and used as quickly as possible so that there is a minimum drop in temperature.
- (c) Where it is unavoidable to hold the gelling agent or stock overnight, it should be stored at a temperature of less than 50 °F. and *boiled* for not less than five minutes before use.

\*71. Brining tanks should be made of materials which resist corrosion and care taken that brine is maintained in a clean condition. The brining tank should be thoroughly cleaned before it is refilled.

\* See cleaning chart



### **III EGG PRODUCTS**

72. Egg products are an ideal medium for the growth of food poisoning organisms. It is therefore all the more important to apply to them the general provisions of this code, especially the recommendations in paragraphs 115 and 119-123. Where it is necessary to reconstitute dried egg products with water, this should be done shortly before use and only enough prepared for the particular process. Frozen liquid egg should not be thawed until required; experience will indicate the amount to be thawed. If any reconstituted mix or liquid egg is left over for later use, it should be kept in the refrigerator or cold store. Strict attention to the cleanliness and sterilization of utensils and equipment is essential, even when pasteurized egg products are used.

73. Where possible separate working space should be provided for processes involving the use of egg products in mixing operations. If this is not possible these processes should be carried out at a different time from other processes.

74. Egg ingredients (excluding dried egg) should be kept apart from bakery items which are to be sold uncooked or lightly cooked, and should be stored at a temperature below 50 °F. (10 °C).

75. Food handlers should wash their hands and arms before and after working on such processes.

\*76. Containers of bulk egg products should be washed out to remove egg residues. To facilitate cleaning, enclosed tanks should be fitted with fixed or slowly rotating drilled hollow spray heads at convenient points so that at least the top surfaces receive an impact of liquid, the remainder being cleaned by gravity flow. Disposable containers should be stacked under cover and protected from flies and other insects.

### **IV BAKERS' FILLINGS etc.**

77. Cream fillings, custards, and other lightly cooked foods, and uncooked products such as trifles should be kept apart until needed and should at all times be kept at a temperature below 50 °F. (10 °C.).

\* See cleaning chart

# **Pest Control**

## **I RATS, MICE, ETC.**

78. Premises should be regularly examined for evidence of infestation, and any measures taken to eradicate rats or mice by poison should always be carried out under skilled supervision so as to avoid contamination of food, equipment and utensils. Advice is obtainable from local authorities.

## **II FLIES AND OTHER INSECTS**

79. The building and yard, with fittings and equipment, should be continuously kept free of breeding places by eliminating cracks and crevices, as well as by routine and thorough cleaning.

80. Fly screens should be installed wherever practicable and be easily removable for cleaning. Copper and nylon gauzes and other specialist devices are available. If wire gauze is used, it should be 24 mesh British Standard wire gauze.

81. Some insecticides are poisonous to humans, and where they are employed the greatest care must be taken to prevent contamination of food, equipment and utensils. The use of insecticides in bakeries requires expert advice. The help of the Public Health Department of the local authority may be sought.

## **III BIRDS**

82. Flour stores and bakehouses should be designed to prevent birds getting in. Foods likely to attract them should as far as practicable be closely and effectively covered. If however birds do find their way in, advice should be sought from the appropriate local authority health department.

## **IV DOMESTIC ANIMALS**

83. Domestic animals should not be allowed in any part of the bakery or sales points. Customers' dogs should be discouraged in shops, including mobile shops.

## **Storage and disposal of trade refuse**

84. Portable receptacles of adequate size with close fitting lids, and internal and external surfaces which are easily cleaned, should be provided for trade waste and other refuse. Metal receptacles should conform to British Standard 792 : 1947. All should be maintained in a good condition and should be kept in a cool and shady place, preferably in the open air, and the lids should be kept on. Refuse and trade waste may have to be accumulated indoors in other containers, but should be transferred as soon as possible to the enclosed receptacles.

Multi-walled disposable bags are available and can be used with advantage to hold refuse provided that they are correctly sited on lidded stands or holders and the tops of the bags are closed when full. Grind waste disposers can be considered for use in some parts of the bakery.

85. Outside receptacles are best supported on a metal stand at least 12 inches above the ground level, so that the yard paving beneath the receptacles may be easily cleaned.

\*86. Receptacles for refuse and trade waste should be emptied regularly and, where internal facilities exist or local authorities have the necessary service, daily. Immediately after emptying they should be washed out with hot water and soda, or a detergent solution, and inverted to dry. Containers for completely dry trade waste may be brushed out.

87. Special care should be taken with emptied fillings and flavour containers. These are likely to attract bees, wasps and other insects and should be in a tightly closed container or stored well away from any food handling area. If they cannot be disposed of within 24 hours a light dusting with a suitable insecticide powder e.g. D.D.T. or gam-mexane will help to control the insect problem.

## **Delivery vehicles**

88. Raw ingredients coming to the bakery and bakery goods should be transported in vehicles which are totally closed in transit and designed to minimise the risk of the foods being contaminated. The only exceptions are where raw ingredients, confectionery or bakery goods are carried in closed containers or in vehicles used solely for internal transport in bakeries.

\* See cleaning chart



89. Vehicles should be so constructed or covered that when they are closed flies, dirt and dust are excluded as far as possible without interfering with the ventilation.

90. The roof, walls and floor of vehicles should be constructed for easy cleaning and should in particular be free of wells, spaces, crevices, and guides for sliding doors, other than cab doors, which harbour crumbs and flour dust. Where sliding door guides are necessary, the bottom channel should finish 3 inches short at one end to make brushing out easy.

\*91. Tray racks and guides should preferably be of metal. Where hard wood is used the fixing should allow for easy, thorough and regular cleaning.

92. All parts of the vehicle body work used in carrying goods should be kept in good order and repair.

\*93. If any interior surfaces of the vehicle, receptacles and equipment or parts of equipment come into direct contact with food, they should be thoroughly cleaned every working day. Crumbs and spillage should be cleared as necessary during use.

\*94. The remaining parts of the interior of the vehicle and interior equipment should be kept clean and, where practicable, washed with warm water containing detergent at least once a week.

95. After being cleaned with detergent, surfaces of vehicles, equipment etc., which may come into contact with the food, should be rinsed with clean and wholesome water.

96. Vehicles for transporting bakery goods should be specially designed for the purpose. Any vehicles in use that have not been specially designed for the purpose should be adapted to comply with this code.

\*97. Vehicles used for the carriage of other goods should not be used for the carriage of bakery goods or bagged ingredients. If this is unavoidable special care should be taken to see that the vehicle is properly cleaned before bagged flour or bakery goods are loaded. There is, however, no objection to the present practice in some sections of the trade of conveying catering materials and supplies with bakery goods, provided that care is exercised.

\* See cleaning chart

98. Bakery goods containing meat should not be carried in vehicles together with other goods unless the meat goods are wrapped or are so protected as to avoid any contact with other goods.

99. Trays used in delivery vehicles should always be arranged so that the bottom of one tray does not touch open food on a lower tray.

100. When bakers' goods are carried from vehicles to shops or households they should be wrapped or protected from contamination by some form of easily removable covering on the tray or basket. Coverings used for this purpose should be kept clean or be regularly replaced.

101. Delivery vehicles of all kinds concerned in wholesale or retail deliveries should have facilities for hand washing available for the driver and other operators. If hand washing facilities are not fitted on the vehicle a hand washing routine should be introduced. The driver and other operators should be asked to wash their hands before leaving the bakery depot and then encouraged to do so frequently on their rounds at public facilities or trade delivery calls. Where vehicles of any company call at retail shops hand washing facilities at these shops should be made available to the van men and it should be noted whether they use these facilities or not. It is good practice for each van man to be issued with his own soap and towel to be carried on the vehicle.

102. Bakery goods which are left for collection by customers should be completely wrapped; otherwise arrangements should be made with the customer to enable them to be left under suitable cover.

## **Retail sales**

103. Shop premises should be designed so as to protect the goods on display from the direct rays of the sun, from touch by customers, from insects, and from accidental contamination.

104. Standards of hygiene are reduced and risks of contamination are increased where the design and layout of premises or sales practices lead to the exposure of more food than is necessary. There should be adequate space for delivering and holding stocks before they need to be exposed for sale.

105. Returnable delivery trays should be stored in an orderly fashion and brushed free of crumbs and flour deposits before being returned.

106. Displays of unwrapped bakers' goods should be protectively screened against the intrusion of customers.

107. Cream confectionery and similar goods exposed for sale should always be protectively screened.

108. Display counters should be screened with glass or transparent plastic protection; racks or shelves used for service or display should be designed to prevent the accumulation of debris, to avoid excessive handling and to allow for easy cleaning.

109. Ventilation control can assist in reducing the problem of flies, but care should be taken to ensure that crumbs and dropped particles are cleared away frequently.

### **Mobile bakers' shops**

110. Paragraphs 103-108 of this code should, as appropriate, be applied to the display and handling of bakers' goods in mobile shops.

111. Mobile bakery shops have special requirements and particular care must be taken in their design, construction, and equipment to provide adequate standards of hygiene and cleanliness. These requirements differ little whether the salesman serves from inside or outside the vehicle.

112. The following requirements for all mobile bakers' shops call for special attention:

- (a) There should be adequate ventilation.
- (b) There should be plenty of clean and wholesome hot and cold water for washing implements and utensils. Soap, clean towels and a nailbrush should be provided for personal cleanliness. If possible there should be separate hand washing facilities.
- (c) There should be provision for the proper storage of utensils.

113. In mobile shops where there is inside service the following requirements apply:

- (a) There should be no walls or depressions in the floor of the vehicle as these make cleaning difficult.
- (b) The floor of the vehicle should be constructed of metal or hardwood; soft wood should not be used even for repairs.
- (c) Serving surfaces should be impervious; they should fit flush or have a gap of at least six inches all round to allow for easy cleaning.



# **Staff**

## **PERSONAL HYGIENE**

114. The high standard of cleanliness necessary in dealing with food is particularly important in handling bakers' goods.

115. A food handler should thoroughly wash his hands, fingernails and forearms with hot water and soap or detergent as often as is reasonably practicable having regard to the nature of the operation being performed, and always after each occasion on which he uses a sanitary convenience. Towels used for drying hands must be clean.

116. Staff should not lick their fingers when handling wrapping paper nor should they open bags by blowing into them.

117. New entrants to the trade should be given instructions in the principles of hygiene. Many local authorities and a number of voluntary bodies with a particular interest in the subject arrange classes and lectures on food hygiene which food handlers can attend.

118. Staff should not be engaged for handling food unless they appear likely to maintain a satisfactory standard of hygiene. Applicants should be asked whether they have suffered from typhoid, paratyphoid fever, or dysentery, or if they have ever to their knowledge been carriers of one of these diseases. If the answer is 'yes' the Medical Officer of Health's advice should be sought before they are engaged.

## **SAFEGUARDS AGAINST INFECTION**

119. Any person handling food who is suffering from:

(a) any infection of the stomach or bowel accompanied by diarrhoea, vomiting or feverishness; or

(b) septic cuts or sores or discharges from the ears or eyes;

should (i) tell his employer through his immediate superior, and

(ii) refrain from handling food or food products until medical advice has been obtained on the risk of infecting food and on any precautions that should be taken.

120. If he has reason to believe that he may be a carrier of typhoid, paratyphoid, or dysentery organisms or of a food poisoning infection, he should act in the same way.

121. If anyone in charge of food handlers has reason to believe that one of them is affected in any of the ways mentioned in the last two paragraphs, he should not allow him to handle food before medical advice been taken on any necessary precautions.

122. If any person handling food has been in contact with anyone suffering from an infection of the bowel accompanied by diarrhoea, he should tell his employer through his immediate superior, and the employer should consider whether in the circumstances medical advice should be taken before the employee is allowed to handle food.

## **PROTECTIVE CLOTHING**

123. All persons engaged in handling food should wear suitable protective clothing made of material (preferably light coloured) which can be easily washed and kept clean. The clothing should be designed so as to give adequate protection both to the wearer and to the food. All employees engaged in the handling of food should be encouraged to cover their hair completely with a clean and washable head covering.

## **FACILITIES FOR TAKING MEALS**

124. Whenever possible staff should take meals away from those parts of the premises where food is kept or where any process incidental to the work of the establishment is carried out.

## Appendix I

### ROUTINE CLEANING CHART—PREMISES

Equipment or area			Routine to follow	Frequency of cleaning
<i>Drains</i>	...	...	Remove grease trap inserts and clean. Wash out body of trap with hot water containing detergent with sterilant. Renew filter material.	Frequently and regularly.
<i>Open drainage channels</i>			Remove any surface grit and scrub grids and channels with hot water containing detergent with sterilant.	At the close of every working day.
<i>Dustbins</i>	...	...	Wash out with hot water and soda or a detergent solution and invert to dry. Alternatively, wash out with 'live steam' if facilities available.	After each emptying.
<i>General goods store</i>				
(i) Walls and shelves			Sweep and/or vacuum clean.	Frequently and regularly.
			Wash down with hot water containing detergent.	At least once a week.
(ii) Floors	...	...	Sweep and/or vacuum clean.	Frequently and regularly.
			Wash down with hot water containing detergent.	Daily.
<i>Issuing stores</i>				
(i) General	...	...	Sweep and/or vacuum clean. Wash any surface that comes into contact with food with hot water containing detergent.	Daily.

Equipment or area	Routine to follow	Frequency of cleaning
(ii) Walls and shelves	Wash down with hot water containing detergent. Walls can be hosed with 'live steam' if facilities exist.	Frequently and regularly.
(iii) Floors ... ..	Wash down with hot water containing detergent, or hose with 'live steam' if facilities available.	Daily.
(iv) Utensils and supply vessels	Wash with hot water containing detergent, rinse and dry or wash out with 'live steam' if facilities available. If the utensils etc. are used for meat, cream, imitation cream or egg, the hot water should contain detergent with sterilant.	At least once a day, more frequently if the process requires.
(v) Measures and skips ... ..	Clean thoroughly, wash with hot water containing detergent, rinse and dry. If the measures and skips are used with meat, cream, imitation cream or egg, the hot water should contain detergent with sterilant.	Frequently and regularly.
Lifts ... ..	Brush out and/or vacuum clean. Wash out with hot water containing detergent.	At least once a day. Once a week.
	Brush top outer surface of the cage and haulage machinery.	Frequently and regularly.
	Clean lift shafts and supply shafts thoroughly.	Frequently and regularly.



Equipment or area	Routine to follow	Frequency of cleaning
<i>Ventilation ducts and fans</i>	Brush and/or vacuum clean outside surfaces of ducts and metal fittings.	When cleaning the walls of the appropriate store.
	Wash down with hot water containing detergent.	Regularly in other parts of the premises.
	Clean inlet screens and filters in the same way.	At least once a week.
<i>Storage tanks (not completely sealed)</i>	Drain tank. Wash interior with hot water containing detergent. Rinse thoroughly and run off. When refilling, first run off sufficient water to dispose of any residues.	At least once every six months.
<i>Brining tanks ...</i>	... Scrape, scrub and wash with hot water containing detergent. Rinse thoroughly. Alternatively wash out with 'live steam' if facilities available.	Before refilling.
<i>Bulk egg storage tanks</i>	Wash out with cold water to remove residues. Wash with hot water containing detergent with sterilant. Rinse thoroughly with cold water.	Before refilling.
<i>Blocking, forming and stamping machines ...</i>	Dismantle, degrease and clean thoroughly. Immerse dismantled parts in boiling water or swab thoroughly with warm water containing detergent. Rinse, dry and reassemble.	Frequently and regularly.

Equipment or area	Routine to follow	Frequency of cleaning
<i>Homogenisers...</i>	... Dismantle, wash working parts in warm water and detergent. Rinse with sterilant, rinse with clean water, reassemble.	At the close of every working period.
<i>Whisks and cooking utensils</i>	Clean thoroughly and scrub in water at 110°F. (43·5°C.) or above, or immerse in warm water containing detergent with sterilant. Scour, rinse and dry.	After every period of use.
<i>Conveyor belts</i>	... Clean off dropped materials.	Frequently and regularly during use.
	Swab with warm water containing detergent.	At least once a day.
	Clean surface of rollers.	At least once a day.
<i>Proving and baking tins</i>	Clean thoroughly.	When necessary (see paragraph 57).
<i>Proving trolleys</i>	... Wash with hot water containing detergent, rinse and dry.	Frequently and regularly during use.
<i>Dough and pastry mixers</i>	Remove spillage and extruded food.	Frequently and regularly during use.
	Clean thoroughly and wash with warm water containing detergent. Rinse with cold water and dry.	At the close of every working period.
<i>Flavours, essences and colours containers</i>	Clean the outside of containers.	Each time they are used.

Equipment or area	Routine to follow	Frequency of cleaning
<i>Pastry boards and icing tables</i>	Keep clean during use. Remove all traces of flour or sugar deposit. Immerse boards in boiling water and scrub, or scrub with warm water containing detergent with sterilant. Always scrub wooden surfaces with the grain.	At the close of every working period.
<i>Scale pans and measures</i>	Remove deposit or spillage.  Wash with warm water containing detergent, rinse and dry. If the pans and measures are used with meat, cream, imitation cream or egg, the water should contain detergent with sterilant.	Frequently and regularly during use.  At the close of every working period and at any change of trade operation.
<i>Knives, etc. ...</i>	Wash in water at 110°F. (43.5°C.) or above or in warm water containing detergent with sterilant. Rinse and dry. Replace in purpose built racks (preferably metal) attached to fixed equipment.	After use.
<i>Wooden trays ...</i>	Scrub with the grain in warm water containing detergent. Rinse and dry. Wash with warm water containing detergent with sterilant. Rinse and dry. If the trays are used with meat, cream, imitation cream or egg products, the water should contain detergent with sterilant. Alternatively, wash by machine in hot water (above 110°F.)	Frequently and regularly.  Trays to be used must be clean or cleaned ready for the start of every working day.

Equipment or area	Routine to follow	Frequency of cleaning
<i>Wiping materials and cloths</i>	(a) Use expendable material OR (b) Keep in suitable chemical sterilant between uses and boil after changing.	(a) Discard into suitable containers conveniently placed. (b) Change several times a day.
<i>Savoy bags</i> ...    ...	Turn inside out, wash away surplus cream. Scrub inside and out with warm water containing detergent with sterilant, rinse in hot water. Boil for 5 minutes, if material is suitable. Scour and sterilise nozzles. Rinse and dry.	After use.



## Appendix II

### ROUTINE CLEANING CHART—VEHICLES

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Equipment or area	Routine to follow	Frequency of cleaning
<hr/>		
<i>Surfaces, receptacles and equipment or parts of equipment that touch food.</i>	Clear crumbs and spillage during use.  Clean thoroughly. Surfaces soiled only with flour dust or non-fatty crumbs can be brushed out.	Frequently.  Every day.
<i>Remaining parts of the interior of the vehicle and interior equipment.</i>	Wash with warm water containing detergent.	At least once a week.

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